

Stravrianopoulos et al.

Serial No.: 10/764,417

Filed: January 23, 2004

Page 3 Amendment Under 37 C.F.R. § 1.115 In Response To September 10, 2007 Office Action – March 10, 2008

Amendments to the Claims:

Please amend the claims as follows:

Claims 1-286 (Previously Canceled)

287. (CURRENTLY AMENDED) A dye composition of the formula

R – Fluorescent Dye

wherein R ~~is~~ comprises a reactive group covalently linked to said Fluorescent Dye
wherein said Fluorescent Dye comprises a combination of two or more members in
~~combination~~ selected from:

- a) unsaturated aliphatic groups;
- b) unsaturated heterocyclic groups;
- c) aromatic groups;

and wherein R ~~is capable of providing~~ provides a conjugated system or an electron delocalized system with said ~~fluorescent dye~~ Fluorescent Dye.

288. (PREVIOUSLY PRESENTED) The dye composition of claim 287, wherein said unsaturated aliphatic groups comprise an alkene or an alkyne.

289. (PREVIOUSLY PRESENTED) The dye composition of claim 287, wherein said aromatic groups comprise a phenyl group, an aryl group or an aromatic heterocyclic group.

290. (PREVIOUSLY PRESENTED) The dye composition of claims 288 or 289, wherein said unsaturated aliphatic groups or aromatic groups are substituted.

291. (PREVIOUSLY PRESENTED) The dye composition of claim 290, wherein said substituted unsaturated aliphatic groups or substituted aromatic groups comprise alkyl groups, aryl groups, alkoxy groups, phenoxy groups, amines, amino groups, amido groups, carboxy groups, nitrates, nitrites, sulfonates, sulfhydryl groups or phosphates.

292. (PREVIOUSLY PRESENTED) The dye composition of claim 290, wherein said substituted aromatic groups comprise a fused ring structure.

293. (PREVIOUSLY PRESENTED) The dye composition of claim 292, wherein said fused ring structure is a naphthalene, anthracene or a phenanthrene.

294. (PREVIOUSLY PRESENTED) The dye composition of claim 287, wherein said combination comprises two members of the same group or of different groups.

295. (PREVIOUSLY PRESENTED) The dye composition of claim 294, wherein said different groups comprise

an unsaturated aliphatic group (a) and an unsaturated heterocyclic group (b);

an unsaturated aliphatic group (a) and an aromatic group (c); or

an unsaturated heterocyclic group (b) and an aromatic group (c).

296. (PREVIOUSLY PRESENTED) The dye composition of claim 287, wherein said fluorescent dye comprises an anthracene, a xanthene, a cyanine, a porphyrin, a coumarin or a composite dye.

297. (PREVIOUSLY PRESENTED) The dye composition of claim 287, further comprising a charged or polar R' group.

298. (PREVIOUSLY PRESENTED) The dye composition of claim 297, wherein said charged or polar R' group increases aqueous solubility of said composition.

299. (PREVIOUSLY PRESENTED) The dye composition of claim 288 or 297, further comprising a reactive group R_x attached to either said fluorescent dye, said R group or said R' group.

300. (PREVIOUSLY PRESENTED) The dye composition of claim 299, further comprising a linker arm attaching said reactive group R_x to said fluorescent dye, said R group or said R' group.

301. (PREVIOUSLY PRESENTED) The dye composition of claim 299, wherein said reactive group R_x comprises sulfhydryl, hydroxyl, amine, isothiocyanate, isocyanate, monochlorotriazine, dichlorotriazine, mono- or di-halogen substituted pyridine, mono- or di-halogen substituted diazine, maleimide, aziridine, sulfonylhalide, acid halide, hydroxysuccinimide ester, hydroxysulfosuccinimide ester, imidoester, hydrazine, azidonitrophenyl, azide, 3-(2-pyridyl dithio)-propionamide, glyoxal or aldehyde.

302. (PREVIOUSLY PRESENTED) The dye composition of claim 300, wherein said reactive group R_x comprises sulfhydryl, hydroxyl, amine, isothiocyanate, isocyanate, monochlorotriazine, dichlorotriazine, mono- or di-halogen substituted pyridine, mono- or di-halogen substituted diazine, maleimide, aziridine, sulfonylhalide, acid halide, hydroxysuccinimide ester, hydroxysulfosuccinimide ester, imidoester, hydrazine, azidonitrophenyl, azide, 3-(2-pyridyl dithio)-propionamide, glyoxal or aldehyde.

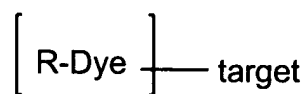
303. (CURRENTLY AMENDED) The dye composition of claim 299, wherein said as-a reactive group R comprises an alkene group, an alkyne group, a halogenated compound or a metallo-organic compound, said R group having the ability to form is ~~capable of forming~~ a carbon-carbon linkage with a target.

304. (CURRENTLY AMENDED) The dye composition of claim 300, wherein said as-a reactive group R comprises an alkene group, an alkyne group, a halogenated compound or metallo-organic compound, said R group having the ability to form is ~~capable of forming~~ a carbon-carbon linkage with a target.

305. (CANCELED)

306. (CANCELED)

307. (CURRENTLY AMENDED) A labeled target having the structure



wherein said Dye is a fluorescent dye, wherein R ~~is~~ comprises a reactive group covalently linked to said Dye, and wherein R comprises two or more members selected in combination from:

- a) unsaturated aliphatic groups;
- b) unsaturated heterocyclic groups;
- c) aromatic groups;

~~and wherein R is capable of providing~~ provides a conjugated system or an electron delocalized system with said Dye, and wherein said target is covalently attached to said Dye or said R.

308. (PREVIOUSLY PRESENTED) The labeled target of claim 307, wherein said unsaturated aliphatic groups comprise an alkene or an alkyne.

309. (PREVIOUSLY PRESENTED) The labeled target of claim 307, wherein said aromatic groups comprise a phenyl group, an aryl group or an aromatic heterocyclic group.

310. (PREVIOUSLY PRESENTED) The labeled target of claims 308 or 309, wherein said unsaturated aliphatic groups or aromatic groups are substituted.

311. (PREVIOUSLY PRESENTED) The labeled target of claim 307, wherein said substituted unsaturated aliphatic groups or substituted aromatic groups comprise alkyl groups, aryl groups, alkoxy groups, phenoxy groups, amines, amino groups, amido groups, carboxy groups, nitrates, nitrites, sulfonates, sulfhydryl groups or phosphates.

312. (PREVIOUSLY PRESENTED) The labeled target of claim 310, wherein said substituted aromatic groups comprise a fused ring structure.

313. (PREVIOUSLY PRESENTED) The labeled target of claim 312, wherein said fused ring structure is a naphthalene, anthracene or a phenanthrene.

314. (PREVIOUSLY PRESENTED) The labeled target of claim 307, wherein said combination comprises two members of the same group or of different groups.

315. (PREVIOUSLY PRESENTED) The labeled target of claim 314, wherein said different groups comprise

an unsaturated aliphatic group (a) and an unsaturated heterocyclic group (b);
an unsaturated aliphatic group (a) and an aromatic group (c); or
an unsaturated heterocyclic group (b) and an aromatic group (c).

316. (PREVIOUSLY PRESENTED) The labeled target of claim 307, wherein said fluorescent dye comprises an anthracene, a xanthene, a cyanine, a porphyrin, a coumarin or a composite dye.

317. (PREVIOUSLY PRESENTED) The labeled target of claim 307, further comprising a charged or polar R' group

318. (PREVIOUSLY PRESENTED) The labeled target of claim 307, wherein said charged or polar R' group increases aqueous solubility of said composition.

319. (PREVIOUSLY PRESENTED) The labeled target of claim 317, further comprising a linker arm attaching said target to said fluorescent dye, said R group or said R' group.

320. (PREVIOUSLY PRESENTED) The labeled target of claim 307, wherein said target comprises a protein, a peptide, a nucleic acid, a nucleotide or a nucleotide analog, a receptor, a natural or synthetic drug, a synthetic oligomer, a synthetic polymer, a hormone, a lymphokine, a cytokine, a toxin, a ligand, an antigen, a hapten, an antibody, a carbohydrate, a sugar or an oligo- or polysaccharide.

321. (PREVIOUSLY PRESENTED) The labeled target of claim 320, wherein said ligand comprises biotin, iminobiotin, digoxigenin or fluorescein, and the dye comprises a fluorescent dye.
